2.2. Recent changes in Ukraine's security position

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Abstract. *The second part of this chapter is devoted to the assessment of the Ukrainian economy's secure development, taking into account the determinants of the development of the European and global security environment. Based on a comprehensive approach to assessing and monitoring the level of economic security, in particular on the basis of a multi-criteria assessment of countries' positions in the global economic environment, calculations are made to determine the security positions of Ukraine and their corresponding changes.*

The calculations are based on the algorithm developed by the authors for assessing the positions of countries in the global security environment, which includes the following stages: the assessment of positions and their changes in key international rankings, systematized by categories of global security risks (economic, social, political, technological, environmental); the evaluation of generalized estimates of indices of key international rankings and statistical indicators of country variation and differentiation; the calculation of structural characteristics of distribution (positioning of countries) in international ratings; the calculation of integrated indices of countries' leadership positions in the global environment, the use of which in the security assessment system allows us to determine and justify the preconditions for improving the sustainability of development and strengthening the security positions of countries.

It is determined that the most well-known international rankings, which reflect the level of leadership potential and sustainability of countries' development within the world, are based on such indices as: the Easy Doing Index, the Economic Freedom Index, the Sustainable Development Goals Index, the Global Sustainable Competitiveness Index, and the KOF Index of Globalization (all of which concern the economic component of countries' security development); the Human Development Index, The Legatum Prosperity Index, the Social Progress Index, and the World Happiness Index (social component); The Corruption Perceptions Index, the Democracy Index, the Global Peace Index, and The Fragile States Index (political

component); the Global Innovation Index, the Global Knowledge Index, and the Global Cybersecurity Index (technological component); and the Environmental Performance Index and Green Growth Index (environmental component).

A comprehensive accounting of these indices and their estimates allows us to calculate the integrated indicator of Ukraine's leadership positions in comparison with the EU countries and, accordingly, to determine the areas of development that are most significant from the point of view of secure economic development in the context of the formation of vulnerabilities. Therefore, these areas require the greatest attention when developing strategic measures for managing economic security.

Keywords: secure development, countries security positions, global environment, international ranking, integrated index, leadership positions, leadership potential.

Introduction

Global environmental threats pose additional risks to the security and sustainability of the economic development of the national economy and, accordingly, affect the country's position in the global economy, strengthening or weakening competitive advantages and impeding the potential for economic growth and development in the absence of effective adaptation mechanisms.

A comprehensive approach to the assessment and monitoring of the economic security situation, combining different assessment focuses at different hierarchical levels of security, has many advantages, one of which is the possibility of a multidimensional analysis of national economic security systems which interact within regional security complexes and form the landscape of the global economic security system. Within this approach, one of the objects of assessment is the global security environment. The features and determinants of its development and transformation affect the state of national economic security systems and countries' security positions within regional security complexes.

This paper proposes to study the changes in Ukraine's security position on the basis of a comprehensive approach, in which one of the stages of the assessment is the analysis of the position of countries in the global environment, using the results of the ranking of countries in the framework of key global ratings compiled by international organizations, foundations, research and consulting companies, and other institutions. These ratings are based on the calculation of the relevant global indices, which are ranked according to their scores in the rating, making it possible to compare countries in terms of efficiency, competitiveness, quality of life, prosperity, innovation, political stability, and other factors, and to identify the most successful countries that are undisputed leaders in the global environment and, accordingly, have the highest levels of sustainability and security.

Taking into account the thesis that the analysis of the level of economic security should form the basis for the effective assessment and management of economic security risks at the regional (for example, the European regional security complex), national (for example, the national security of individual EU countries), and business (microeconomic, represented by the interests of economic entities and the population) levels, it is advisable to analyze ratings based on their preliminary classification by spheres (components) of security, which in turn correlate with categories of global risks (economic, social, geopolitical, technological, and environmental) facing the world today according to the reports of the World Economic Forum (2023, 2024).

This research aims to develop and test an algorithm for assessing the integrated indices of leadership positions of countries in the global environment.

The main objectives of the study, which determine its logic and design, are as follows:

1. The systematization of global rankings of countries by security spheres (economic, social, geopolitical, technological, and environmental), which correlate with the key global risks of economic development.

2. The development of methodological tools to assess the leadership positions of countries in the global environment, based on the appropriate algorithm for forming an integrated index.
3. The calculation of the integrated index of Ukraine's leadership positions in comparison with EU countries (European regional security complex), which will allow the areas of development that are most significant in terms of forming vulnerabilities in the security of economic development and thus require the greatest attention in the development of strategic measures for economic security management to be identified.

As for the methodology, the study uses the method of calculating multidimensional averages, including the construction of a composite indicator: the integrated index of the country's leadership positions. Statistical methods for assessing dynamics and descriptive statistics are also used.

Primary results

As a result of systematization, a system of key global ratings was formed, which are relevant (at the time of the study, in 2023) and are updated annually (Table 1). It should be noted that these ratings on various components of security allow us to compare countries in the following areas: *economic*, regarding aspects of business efficiency and transparency and the clarity of the regulatory environment for economic activity, the level of economic freedom, the level of sustainable competitiveness, the level of globalization, and the effectiveness of the implementation of sustainable development goals; *social*, regarding indicators of the well-being and quality of life of the population, which are measured in indices of human development potential, global prosperity, social progress, and happiness; *political*, regarding the stability of the legal system, the system of general public administration, and compliance with law and order, comprehensively assessing the indices of the perception of corruption, democracy, peace, and fragility of states; *technological*, regarding the possibilities of innovative development and

the use of knowledge and innovation, as well as protection against cyber threats; and *environmental*, regarding environmental efficiency and success in the field of green growth.

Table 1. Main global rankings of countries

Global rating (index)	Developer	Aim
Economic component of security		
Doing Business Index (from the year of 2022 Business Ready Index), **DBI**	World Bank Group	To compare countries with regard to the ease of doing business and the availability of clear, transparent and effective regulatory rules for economic activity
Economic Freedom Index, **EFI**	Heritage Foundation	To measure the development of economic freedom in countries around the world
Sustainable Development Goals Index, **SDGI**	Sustainable Development Solutions Network	To measure the progress of countries in achieving the sustainable development goals
Global Sustainable Competitiveness Index, **GSCI**	SolAbility	To measure the level of competitive development of countries on the basis of sustainable development and the combination of economic factors with environmental and social dimensions
Globalization Index, **KOF**	KOF Swiss Economic Institute	To compare countries by level of globalization in three dimensions: economic, social, and political
Social component of security		
Human Development Index, **HDI**	UN Development Programme	To compare countries in terms of living standards, literacy, education, and longevity as the main components of human development
Global Prosperity Index, **GPI**	Legatum Centre for National Prosperity	To measure the achievements of countries around the world in terms of their welfare and prosperity
Social Progress Index, **SPI**	Social Progress Imperative	To compare the progress of countries in ensuring social progress

World Happiness Index, **WHI**	Sustainable Development Solutions Network (Gallup World Poll data)	To compare countries around the world by the level of happiness and well-being as important criteria for public policy
Political component of security		
Corruption Perceptions Index, **CPI**	Transparency International	To measure the level of perception of corruption in the public sector and identify the most and least corrupt countries in the world
Democracy Index, **DI**	Economist Intelligence Unit	To compare countries around the world according to the level of democracy development and classify them into 4 types (full democracies, flawed democracies, hybrid regimes, and authoritarian regimes)
Global Peace Index, **GPI**	Institute for Economics & Peace	To evaluate countries by the level of security of living, including the occurrence and scale of conflicts (domestic and international), the level of stability and security within the state, and the level of state militarization
Fragile States Index, **FSI**	Fund for Peace	To rank countries by the level of stability, assessing the ability of the country's government to control the country's territorial integrity
Technological component of security		
Global Innovation Index, **GII**	World Intellectual Property Organization	To measure the level of innovative potential of countries around the world
Global Knowledge Index, **GKI**	UN Development Program and Mohammed bin Rashid Al Maktoum Knowledge Foundation	To measure the level of the knowledge economy, comparing countries by their ability to generate and use innovations
Global Cybersecurity Index **GCSI**	International Telecommunication Union	To measures the level of countries' readiness to ensure cybersecurity
Environmental component of security		
Environmental Performance Index, **EPI**	Yale Center for Environmental Law & Policy	To conduct a comparative analysis of the environmental policy indicators of countries

Green Growth Index, **GGI**	Global Green Growth Institute	To measure of the achievement of green growth goals in the areas of efficient and sustainable use of resources, protection of natural capital, green economic opportunities, and social inclusion

Source: compiled by the authors based on Doing Business Data (2023); Economic Freedom Index (2023); Sustainable Development Goal Index (2022); Global Sustainable Competitiveness Index (2023); KOF Globalisation Index, 2023); Human Development Index (2023); Legatum Prosperity Index (2023); Social Progress Index (2023); World Happiness Index (2023); Corruption Perceptions Index (2022); Fragile States Index (2023);

The Global Knowledge Index (2022); Global Cybersecurity Index (2020); Environmental Performance Index (2023); Green Growth Index (2023)

Based on the research of Karpenko (2023), an algorithm for the further analysis of country estimates according to key global ratings is formed as follows (Fig. 1).

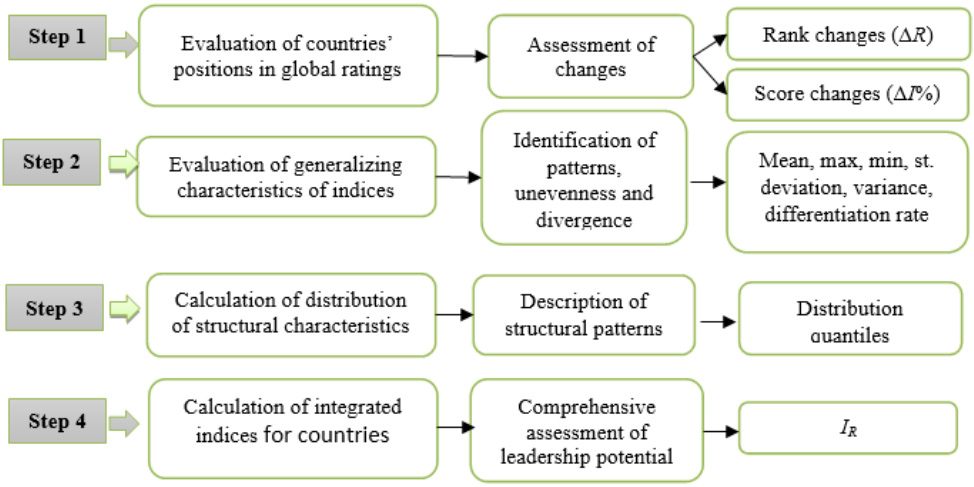


Figure 1. Algorithm for assessing the positions of countries in the global environment

Source: developed by the authors

The *first step* involves the evaluation of countries' positions in the ratings given in Table 1 on the basis of the analysis of index and rank, as well as using methods for dynamic series analysis and the evaluation of changes in position (ΔR) and indices (ΔI%):

$$\Delta R = R_1 - R_0$$

where: R_1 – the rank at the current period in time (the last relevant ranking);

R_0 – the rank at the base period in time (data from previous ratings).

If $\Delta R = 0$, the position has not changed, 0; if $\Delta R > 0$, the position has deteriorated, ↓; if $\Delta R < 0$, the position has improved, ↑. The loss of positions can logically be seen as a deterioration in a country's development conditions, a decrease in stability, and an increase in unstable conditions or events, which is evidence of a weakening of economic security, and vice versa.

$$\Delta I\% = \frac{(I_1 - I_0)}{I_0} \times 100$$

where: I_1 is the index score for the current period of time (the latest relevant rating); I_0 is the index score for the base period of time (data from previous ratings).

If $\Delta I\% = 0$, then there are no changes; $\Delta I\% > 0$ represents an increase in the index level; while $\Delta I\% < 0$ illustrates decrease in the index level. An increase in the level of the index (even if the position is unchanged or insignificant) is evidence of the country's increasing success (or achievements, or efficiency) in the area analyzed within the international ranking, which can also be assessed as a prerequisite for improving the sustainability of development and strengthening security positions, and vice versa.

The *second step* is to assess generalized estimates of indices within key international ratings and statistical indicators of the variation and differentiation of the sample of countries (for example, within the regional security complex).

As part of this stage, it is advisable to calculate the mean value of the index () for the sample of countries, which allows the central tendency to be determined and, accordingly, enables the comparison of countries relative to the mean, identifying more and less efficient economies. The minimum (I_{min}) and maximum (Imax) values of the index allow the absolute leader country and countries outside of the sample to be identified, and permit the *range of data variation* (the growth of which is evidence of an increase in heterogeneity and asymmetry) to

be determined. *Standard deviation* (σ) and the *coefficient of variation* (*V*σ) are also measures of heterogeneity, the growth of which is a negative factor in the functioning of the sample (for example, countries within regional security complexes). Finally, the differentiation rate (*d*) estimates the maximum level of difference between countries according to the index scores.

The formulas for calculating the indicators are presented below:

$$\sigma = \sqrt{\frac{\sum(I-\bar{I})^2}{n}} \quad (1)$$

$$V\sigma = \frac{\sigma}{\bar{I}} \times 100 \quad (2)$$

$$d = \frac{Imax}{Imin} \quad (3)$$

The *third stage* involves the calculation of the structural distribution characteristics (positioning of countries) in the global ratings. From the point of view of statistical analysis, the structural distribution characteristics are the quantiles of the distribution, in particular quartiles (dividing the aggregated data into four equal parts), quintiles (five equal parts), and deciles (ten equal parts). As a result of the assessment of the first (starting from the beginning of the rating) structural characteristics obtained on the basis of ranks, it is possible to compare the results of the rating by top 10%, top 20%, and top 25% of leading countries, which also allows them to be classified as countries with a sufficiently high ability to ensure sustainability and secure development.

Finally, at the last stage it is possible to form and calculate the integrated indices for countries' leadership positions. It should be noted that the integrated index of leadership positions is a generalizing composite indicator that provides a multidimensional comparative assessment of a particular country in terms of

achieving the most effective development (leadership) relative to other countries within a global environment or regional complex.

At the first stage of designing this index, it is necessary to determine its structure based on the system of global ratings (Fig. 2).

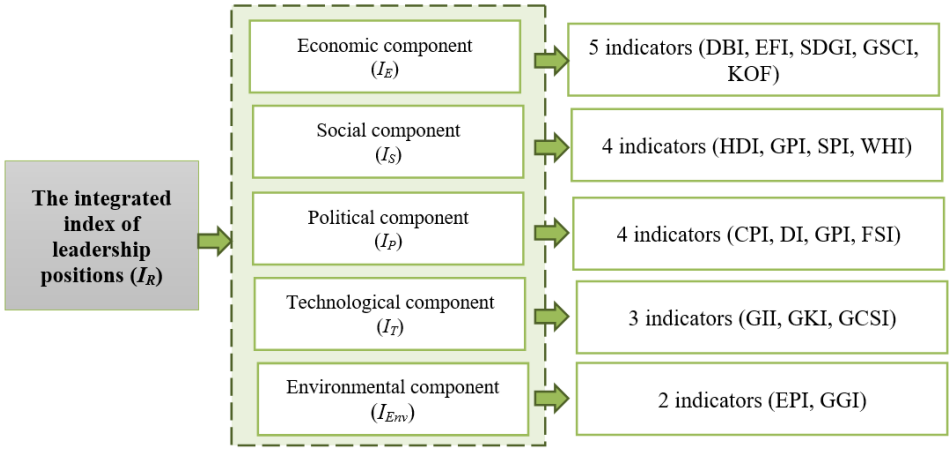


Figure 2. The structure of an integrated index of countries' leadership positions in the global environment

Source: developed by the authors

As a result, the integrated index is composed of 5 sub-components (economic, social, political, technological, and environmental) that include 18 indicators, which are scores of a certain country in each ranking as follows: 5 indices of the economic component; 4 of the social and political; 3 of the technological; and 2 environmental.

Among the rating scores (indices), there are not only stimulators (where the growth of their values improves the effectiveness of the country's development and vice versa), but also destimulators (where the growth of index values causes a deterioration in the country's development efficiency). The indicators that are destimulators include the Global Peace Index and the Fragile States Index.

Based on the algorithms for the formation of complex integral indicators existing in the practice of economic research (OECD, 2008), the calculation consisted

of the following stages:

- firstly, the choice of methods for standardizing input data (indicators);
- secondly, the choice of how to aggregate standardized data.

There are different methods that are used to bring parameters that differ to comparable forms – namely, the ranking method, the standardization method (z-scores, comparison relative to the average level, and standard deviation), the min-max method (comparison with the max and min values of the indicator), the method of comparison with the average level of the indicator, the method of comparison with the highest value of the indicator (max value), the method of categorical scaling, the method of cyclic indicators, and others (OECD, 2008; Freudenberg, 2003; Nilsson, 2000).

Since the purpose of the index is to form a generalizing characteristic of countries' positions in the global environment, the most optimal method of standardization is to compare with the global average level of indicators.

Thus, the following formulas are proposed for standardization:

$$SI_i = \frac{Iij}{Iiw} \quad \text{(for stimulators} \qquad (4)$$

$$SI_i = \frac{Iiw}{Iij} \quad \text{(for destimulators)} \quad (5)$$

where: – index value from the i-th rating for the j-th country; – the average global value of the index from the i-th rating.

The main methods of aggregation include linear (additive – the integrated score is in the form of an arithmetic mean) and geometric (multiplicative – the integrated score is calculated as a geometric mean). As for the weighting methods, their range is quite wide, including the use of weight levels, the method of expert opinions, the method of principal components, methods of factor analysis, including the determination of correlations, etc. (OECD, 2008).

To aggregate standardized data, the method of geometric aggregation with

equal weights was used, which implies the calculation of the geometric mean:

$$I_R = \sqrt[m]{\prod_{i=1}^{m} SIi} \qquad (6)$$

As a result, the integrated indicator is calculated according to the following formula:

$$I_R = \sqrt[5]{\mathrm{I_E} \times \mathrm{I}_S \times \mathrm{I}_P \times \mathrm{I}_T \times \mathrm{I}_{Env}} \quad (7)$$

If $I_R > 1$, this indicates that the generalized assessment of the country's position in the global environment is higher (better) compared to the global average. The more I_R deviates from one, the greater the leadership potential of the country.

Conversely, if $I_R < 1$, the generalized positions of the country in the global environment are unsatisfactory – that is, lower (worse) compared to the global average. The more I_R approaches zero, the less role the country plays in the system of global economic relations, and the prerequisites for ensuring stability and secure development are worse.

According to the above, the analysis of integrated indices should include an assessment of the I_R indices themselves and the degree of deviation ($\Delta R = I_R - 1$).

The proposed algorithm was tested on the example of Ukraine, the key vector of development of which is European integration, and where achievements in the field of ensuring economic security are possible only if the country cooperates within the European regional security complex on the basis of the coherence of goals, strategic objectives, and targets.

For the EU countries, one of the strategic priorities in terms of both development and ensuring economic security is to increase the level of competitiveness of countries by increasing the stability of the European economy, strengthening innovative and industrial potential, maintaining technological leadership, and the active development of digital and green economies. As noted in the draft EU Economic Security Strategy, this priority can be achieved by deepening the

common market, investing in the economy of the future through smart macroeconomic policies and cohesion policies, and investing in human capital, in particular by improving the skills of the European workforce. This will require the diversification of supply sources and export markets, as well as investment in the development of the research and industrial base in strategic areas such as modern semiconductors, quantum computing, biotechnology, zero-output industries, clean energy, and important raw materials (European Commission, 2023). One of the strategic tasks of the EU in terms of economic security is to maintain leadership positions in the global economic system and to ensure the maximum preservation of leadership potential.

Based on the proposed methodology (algorithm), a sample of EU countries was analyzed using the global rating system for the 2017–2023 period. Summarizing the results of the study allows us to state that EU countries: have seen significant achievements in ensuring conditions and ease of doing business; possess predominantly free or moderately free economic systems; are more than 80% successful in achieving the sustainable development goals; have the most sustainable competitive economies, but have not yet achieved the highest level of sustainability in providing competitive advantages; are the world's most globalized economies; have a high or very high level of human development; are included in the first two groups (of six possible) of countries in terms of prosperity and well-being; are happy or moderately happy nations; have the lowest or average levels of perception of corruption, have achieved the greatest success in the fight against corruption, and have strong institutions and an effectively functioning democratic system; have a very high level of peace and security and stable socio-political systems; are among the 50 most innovative economies in the world, characterized by a high level of development of the knowledge economy; have developed cyber defense systems; are characterized by the most effective results of environmental policy implementation; and lead the rating of green economies in the world,

having high rates of green growth.

The statistical analysis of variation and differentiation in the leading positions of the EU countries, the results of which are given in Table 3, allows us to draw a number of further conclusions.

Table 3. Assessment of EU countries' variations in indicators by global indices

Source: authors' calculations

Indicator (scale)		Mean	Min	Max	St. deviation	Variance coefficient	Differentiation rate
Economic	DBI (0–100)	76.21	66.10	85.30	4.38	5.75	1.29
	EFI (0–100)	70.54	56.90	82.00	6.03	8.54	1.44
	SDGI (0–100)	80.16	72.49	86.76	3.29	4.10	1.20
	GSCI (0–100)	53.21	46.07	60.67	3.63	6.82	1.32
	KOF (0–100)	84.00	76.79	90.48	3.75	4.47	1.18
Social	HDI (0–1)	0.90	0.80	0.95	0.04	4.55	1.19
	GPI (0–100)	75.19	65.55	84.55	5.60	7.45	1.29
	SPI (0–100)	84.72	76.81	90.54	3.82	4.51	1.18
	WHI (0–10)	6.63	5.47	7.80	0.56	8.38	1.43
Political	CPI (0–100)	63.63	42.00	90.00	13.90	21.84	2.14
	DI (0–10)	7.89	6.45	9.39	0.89	11.29	1.46
	GPI (1–5)	1.55	1.31	1.94	0.18	11.78	1.48
	FSI (0–100)	35.36	16.00	57.00	12.71	35.94	3.56
Technological	GII (0–100)	45.59	34.11	61.56	8.23	18.06	1.80
	GKI (0–100)	59.56	48.83	66.96	4.96	8.32	1.37
	GCSI (0–100)	91.28	67.38	99.48	8.62	9.44	1.48
Ecological	EPI (0–100)	61.57	50.40	77.90	7.68	12.48	1.55
	GGI (0–100)	68.47	50.72	77.78	5.85	8.54	1.53

Firstly, comparing the average values of EU indices, it can be noted that the smallest estimates – represented by a low result and the need to concentrate

efforts in these areas – are obtained for the Global Sustainable Competitiveness Index, the Global Innovation Index, and the Global Knowledge Index. For other global indices, average estimates are above 60% of the maximum possible value.

Secondly, the aggregate of EU countries is heterogeneous according to the index of fragile states (variation above 33%). According to the remaining indices, EU countries are homogeneous. Moderate variation is observed in political indices, including the Corruption Perceptions Index, the Democracy Index, the Global Peace Index, the Global Innovation Index, and the Environmental Performance Index. Greater variation is evidence of heterogeneity and asymmetry of development.

Thirdly, the greatest differentiation in EU countries is revealed by the Corruption Perception Index and the Fragile States Index. According to the remaining indices, differentiation is insignificant. An increase in the level of differentiation worsens the average European estimates and positions, increasing uneven development.

The risks of losing leadership positions are associated not only with internal transformations within the European region, but also with external factors that are formed under the influence of development trends in other countries in the global competitive environment. Norway, Great Britain, Switzerland, and Iceland (in some ratings) are among the other countries that have competitive advantages in relation to the EU countries in the global environment. The United States is the absolute leader in the Global Knowledge Index rating and the Global Cybersecurity Index rating, and is also among the top ten countries in terms of ease of doing business. Among the countries of the Asia-Pacific region, Singapore, Taiwan, Hong Kong, Korea, New Zealand, and Japan hold the leading positions.

The calculation of the structural characteristics of the distribution of EU countries within global rankings (Table 4) also allow us to provide a generalized assessment of the peculiarities of the formation of leadership potential. Thus, on

average, 35.4% of EU countries are in the top 10% of the most effective (by various criteria) countries in the world in this area. The EU countries have the highest level of leadership potential according to such ratings (and corresponding indices) as the Sustainable Development Goals Index (48.1% of EU countries in the top 10%), the Sustainable Competitiveness Index (44.4%), the KOF Globalization Index (55.6%), the Fragile States Index (40.7%), the Environmental Performance Index (51.9%), and the Green Growth Index (44.4%).

Table 4. Analysis of the structural characteristics of the EU countries' distribution in global ratings

Source: authors' calculations

Structural characteristics	Number of the EU countries																	
	Economic					Social				Political				Technological			Ecological	
	DBI	EFI	SDGI	GSCI	KOF	HDI	GPI	SPI	WHI	CPI	DI	GPI	FSI	GII	GKI	GCSI	EPI	GGI
1st decile (top 10%)	5	10	13	12	15	8	8	9	6	9	7	10	11	6	8	9	14	12
1st quintile (top 20%)	12	16	22	22	27	21	19	22	14	14	16	20	20	12	15	20	24	23
1st quartile (top 25%)	18	21	25	26	27	25	24	26	18	19	21	22	23	18	21	21	25	24

On average, 69.8% of the EU countries are in the first quintile of the distribution in global ratings (top 20% of the ranking leaders). The EU countries have the highest level of leadership potential for the Sustainable Development Goals Index (81.5% of EU countries in the top 20%), the Sustainable Competitiveness Index (81.5%), the KOF Globalization Index (100%), the Human Development Index (77.8%), the Social Progress Index (81.5%), the Environmental Performance Index (88.9%), and the Green Growth Index (85.2%).

Moreover, 83.1% of EU countries are in the first quartile of the distribution (the top 25% of the ranking leaders) on average, with more than 90% of EU countries taking leading positions in such rankings as the Sustainable Development Goals Index (92.6%), the Sustainable Competitiveness Index (96.3%), the KOF

Globalization Index (100%), the Social Progress Index (96.3%), and the Environmental Performance Index (92.6%).

Unlike the EU countries, Ukraine's position in the global environment is not so significant and indicates a very low level of leadership potential, especially when positioned in the European region. However, in some rankings – in particular, in terms of achieving sustainable development goals, global sustainable competitiveness, globalization, social progress, and environmental efficiency – Ukraine is among the top 30% most successful countries in the world, which is a fairly high result.

The analysis of Ukraine's position in global rankings and the assessment of changes over the past 5 years resulted in the data presented in Table 5.

Table 5. Assessment of Ukraine's position in global rankings

Source: authors' calculations based on ratings data

Indices		Data ratings (2020–2023)		Data ratings (2017–2018)		Changes	
		score	rank (global)	score	rank (global)	score, %	Rank (↑ or ↓ points)
Economic	DBI	70.2	64	63.90	80	9.86	↑16
	EFI	54.1	130	48.1	166	12.47	↑36
	SDGI	76.52	38	72.9	39	4.97	↑1
	GSCI	46.9	49	44.7	74	4.90	↑25
	KOF	73.0	44	70.24	45	3.90	↑1
Social	HDI	77.3	77	75.1	88	2.93	↑11
	GPI	58.84	74	52.86	103	11.31	↑29
	SPI	74.170	52	76.5	56	–3.05	↑4
	WHI	5.071	92	4.096	132	23.81	↑40
Political	CPI	33	116	30	130	10.00	↑14
	DI	5.42	87	5.69	83	–4.75	↓4
	GPI	3.043	157	3.113	152	–2.25	↓5
	FSI	95.9	18	74.0	90	29.59	↑72

Technological	GII	31.02	57	37.6	50	–17.50	↓7
	GKI	46.49	63	46.3	61	0.41	↓2
	GCSI	65.93	78	50.1	58	31.60	↓20
Ecological	EPI	49.6	52	52.9	109	–6.24	↑57
	GGI	57.31	64	57.32	…	–0.02	…

Ukraine has the weakest positions, and therefore the lowest level of development efficiency, in terms of the Economic Freedom Index, the Global Peace Index, the Fragile States Index, the Corruption Perceptions Index, and the World Happiness Index. In other words, imperfections in the political and legal environment, political instability, and weaknesses in the institutional support for development reduce the country's potential for sustainable economic growth. The assessment of changes in the country's position over the last 5 years shows that the country has strengthened its position in most ratings, with the greatest success in achieving environmental efficiency (+57 positions from 109th to 52nd place in the ranking), ensuring a higher level of happiness (+40 positions from 132nd to 92nd place in the ranking), increasing the level of economic freedom (+36 positions from 166th to 136th place in the ranking), and ensuring prosperity (+29 positions from 103rd to 74th place in the ranking). At the same time, the country moved up 72 places in the Fragile States Index (from 90th to 18th position), which indicates increased instability and insecurity, mainly due to war in the country. Ukraine also lost some positions, which are not very significant, in the Democracy Index, the Global Peace Index, the Global Innovation Index, and the Knowledge Index.

In general, if we classify the country according to global rankings, Ukraine is a country with: a predominantly unfree economy; a high level of human development; high results in achieving social progress (2nd group of countries out of 6); a 77% achievement level regarding sustainable development goals; a high level of globalization in the political, social, and economic areas; an average level of innovation development and efficiency of the knowledge economy; and a moderate

level of prosperity and happiness.

Table 6. A comparative analysis of the integrated indices of leadership positions of Ukraine in the European and global environment

Source: authors' calculations

Indices		Ukraine	World	EU	I_R (world)		I_R (EU)		Δ (world)		Δ (EU)	
Economic	**DBI**	70.20	63.63	76.21	1.103		0.921		10.3		–7.9	
	EFI	54.10	59.32	70.54	0.912		0.767		–8.8		–23.3	
	SDGI	76.52	66.69	80.16	1.147		0.955		14.7		–4.5	
	GSCI	46.89	43.21	53.21	1.085		0.881		8.5		–11.9	
	KOF	72.98	61.06	84.00	1.195	1.084	0.869	0.876	19.5	8.4	–13.1	–12.4
Social	**HDI**	0.77	0.73	0.90	1.056		0.863		5.6		–13.7	
	GPI	58.84	58.06	75.19	0.992		0.783		–0.8		–21.7	
	SPI	74.17	65.24	84.72	1.137		0.875		13.7		–12.5	
	WHI	5.07	5.54	6.63	0.915	1.022	0.765	0.820	–8.5	2.2	–23.5	–18.0
Political	**CPI**	33.00	43.00	63.63	0.767		0.519		–23.3		–48.1	
	DI	5.42	5.29	7.89	1.025		0.687		2.5		–31.3	
	GPI	3.04	2.10	1.55	0.690		0.510		–31.0		–49.0	
	FSI	95.90	65.83	35.36	0.686	0.781	0.369	0.509	–31.4	–21.9	–63.1	–49.1
Technological	**GII**	31.02	34.39	45.59	1.305		0.680		30.5		–32.0	
	GKI	46.49	46.47	59.56	1.277		0.781		27.7		–21.9	
	GCSI	65.93	51.89	91.28	1.751	1.429	0.722	0.727	75.1	42.9	–27.8	–27.3
Ecological	**EPI**	49.60	34.35	61.57	1.442		0.806		44.2		–19.4	
	GGI	57.31	55.72	68.47	1.233	1.334	0.837	0.821	23.3	33.4	–16.3	–17.9

On average, compared to the rest of the world, Ukraine's integrated position in the global environment is higher in all components except for the political and legal areas. The highest integrated score is for the technological component (1.429), which means that Ukraine has a 42.9% more competitive innovation system, more developed knowledge economy, and enhanced ability to generate and use information and communication technologies. The environmental component of the integrated index equals 1.334, which shows that Ukraine's achievements in sustainable environmental development and green growth are 33.4% higher than

the average for the rest of the world. In the economic component, with an index score of 1.084, Ukraine's position is 8.4% higher, but the country lags behind by 8.8% in terms of economic freedom, which remains low. The social component of the index is 1.022, which means that Ukraine's integrated position is only 2.2% higher than the global average, and this is mainly due to success in achieving social progress, while Ukraine's position in terms of prosperity and happiness is lower than the global average. Accordingly, it is the political and legal factors that pose threats to sustainability and security, and the country's position is rather unstable and low, as calculations show, with Ukraine lagging behind the rest of the world by 21.9% on average, mainly due to the lack of peace and stability.

When compared to EU countries, Ukraine's integrated positions are the lowest, with calculations showing a lag both in all rating scores (indices) and in integrated position indices. The weakest positions are in the political and legal area – in particular, the stability of the political and legal environment, lagging behind the EU countries by an average of 49.1%. The integrated index for the technological component is 0.727, showing shows that Ukraine's innovation capabilities are 27.3% lower than those of the EU countries. Ukraine's position relative to the EU is 18% weaker in the social component, 17.9% less effective in building a sustainable green economy, and 12.4% less effective in the economic component. Ukraine sees the most significant bottlenecks in shaping its leadership position in the European space in the Corruption Perceptions Index, the Peace Index, the Fragile States Index, the Democracy Index, and the Global Innovation Index.

Conclusions

This article proposes an algorithm for assessing the leadership positions of countries in the global environment, which includes the following steps: an assessment of positions and their changes in key global rankings, systematized by categories of security risks (economic, social, political, legal, technological,

environmental); an assessment of generalized estimates of indices of key global rankings and statistical indicators of the variation and differentiation of countries; a calculation of the structural characteristics of distribution (positioning of countries) in global rankings; and a calculation of the integrated indices of leadership positions of countries. It should be noted that this algorithm is one of the most effective tools for assessing the factors of the impact of the global security environment on countries' positions and resilience.

The research conducted using this algorithm allows us to determine that, on the one hand, Ukraine's integrated position in the global environment is higher than the average (taking into account the totality of all countries) in all components, except for the political and legal area. In particular, Ukraine has a more competitive innovation system, a more developed knowledge economy, the ability to generate and use information and communication technologies, and 33.4% higher achievements in the field of sustainable environmental development and green growth. Political and legal factors pose the main threats to sustainability and security, with the country's position 21.9% lower than the rest of the world (according to the global average). On the other hand, compared to the EU countries, Ukraine's integrated position in the European environment is lowest, with a lag in all components, the largest of which are in the political, legal, and technological areas.

Accordingly, Ukraine's security positions and their changes in the European and global economic environment will primarily be influenced by: military and political instability and, accordingly, geopolitical risks; the intensification of the use of the information space as an instrument of influence, information wars, increased cybercrime, and the inability to provide a high level of protection; growing socio-economic inequality and the further growth of migration, as well as environmental security issues resulting from the spread of ecocide, especially in Ukraine as a result of military operations; and the ineffectiveness of international

cooperation in solving global environmental problems.

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